



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/773,507

02/05/2004

Taejoon Kwon

YPL-0080

6812

23413 7590 12/12/2008
CANTOR COLBURN, LLP
20 Church Street
22nd Floor
Hartford, CT 06103

EXAMINER

ZHOU, SHUBO

ART UNIT

PAPER NUMBER

1631

NOTIFICATION DATE

DELIVERY MODE

12/12/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

usptopatentmail@cantorcolburn.com

Office Action Summary	Application No. 10/773,507	Applicant(s) KWON, TAEJOON	
	Examiner SHUBO (Joe) ZHOU	Art Unit 1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 August 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 and 15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-12 and 15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Applicant's request for reconsideration filed 8/13/08 is acknowledged. There is no amendment to the claims in the response.

Claims 1-12 and 15 are currently pending and under consideration.

Claim Rejections-35 USC § 112

The rejection of claim 12 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement set forth in the previous Office action is withdrawn in view of applicant's argument filed 8/13/08. The argument is persuasive.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 1-12 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Benson et al. (Nucleic Acids Research, 1999, Vol. 27, pages 38-43).

The claims are drawn to a method and system for determining the location of a target sequence in a genome.

Benson et al. disclose the system of database GenBank and methods of searching the database with a query.

Benson et al. disclose that the GenBank system comprises a plurality of records of different types of sequences including cDNA and genome sequences of different organisms including different versions of sequences. The database includes different divisions and each division includes different files. For each record, it includes sequences identifiers and accession numbers, scientific name, taxonomy of the source organism, and a table that lists length of the sequence, etc. and features that identifiers coding regions and other sites of biological significance, such as transcription units, intron/exon boundaries, sites of mutations or modifications and other sequence features. See at least page 39, left column. These tables are interpreted as a crosslink map because they link the various sequence features such as intron/exon boundaries and transcriptional units with the locations in the sequences. Benson et al. also disclose various methods of searching the databases including BLAST and PowerBLAST. In the BLAST method, when a query sequence is provided, which is interpreted as being the target sequence recited in the instant claims, the BLAST system searches the entire database of records to find homologous sequences and locations of the query sequence (target sequences) in the

Art Unit: 1631

sequences including genome sequences in the database, and displays the location of the query/target sequence in the various database record sequences in the form of alignments.

While Benson et al. do not explicitly disclose that the system comprises a storage unit, an information search unit and a location estimation unit, as recited in the instant claims, given that all the functions performed by these units in the claims are also performed in Benson et al., it would have been obvious to one of ordinary skill in the art that the system of BLAST+GenBank includes all these units. Furthermore, a computer program or algorithm for performing all these functions must have to be stored in a computer readable medium in the system disclosed by Benson et al. in order to perform the sequence searching, etc. as BLAST searches has been extremely well known and widely used since its publication in 1990.

Applicant's arguments filed 8/13/08 have been fully considered but they are not persuasive. Applicant argues that Benson et al. are silent with respect to at least a crosslink map as in claim 7 that comprises records of sequence information for a plurality of versions of a genome sequence. This is not found persuasive. As set forth in the previous Office action and reiterated above, Benson et al. disclose that the GenBank system comprises a plurality of records of different types of sequences including cDNA and genome sequences of different organisms including different versions of sequences. The database includes different divisions and each division includes different files. For each record, it includes sequences identifiers and accession numbers, scientific name, taxonomy of the source organism, and a table that lists length of the sequence, etc. and features that identifiers coding regions and other sites of biological significance, such as transcription units, intron/exon boundaries, sites of mutations or modifications and other

Art Unit: 1631

sequence features. See at least page 39, left column. These tables are interpreted as a crosslink map because they link the various sequence features such as intron/exon boundaries and transcriptional units with the locations in the sequences. Applicant argues that the table of features taught by Benson et al. is for a single sequence entry not comprising records of sequence information for a plurality of versions of a genome sequence. This is unpersuasive because as stated above, it is all these tables not a particular table that are interpreted to be the crosslink map. Applicant further argues that Benson et al. do not teach determining a reference group comprising a reference sequence for an organism, calculating a difference value of a start position and an end position of the reference sequence or determining a location of the target sequence in the genome sequence by a location shift. This is not found persuasive because as would have been recognized by one of ordinary skill in the art, when the BLAST software searches the database for a query sequence, which can be interpreted as a reference, it compares all the sequences including the start and end position of the query sequence with all sequences in the database and determines the location of the query sequence in the sequence(s) identified by the software to be homologous with, and if the identified sequences are genomic sequences such as human genome sequences which are in GenBank, it determines the location of the query sequence in the genome sequences.

Conclusion

No claim is allowed.

THIS ACTION IS MADE FINAL.

Art Unit: 1631

Applicants are reminded of the extension of time policy as set forth in 37 C.F.R. §1.136 (a). A shortened statutory period for response to this final action is set to expire three months from the date of this action. In the event a first response is filed within two months of the mailing date of this final action and the advisory action is not mailed until after the end of the three-month shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 C.F.R. §1.136 (a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than six months from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shubo (Joe) Zhou, whose telephone number is 571-272-0724. The examiner can normally be reached Monday-Friday from 8 A.M. to 4 P.M. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran, can be reached on 571-272-0735. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Patent applicants with problems or questions regarding electronic images that can be viewed in the Patent Application Information Retrieval system (PAIR) can now contact the USPTO's Patent Electronic Business Center (Patent EBC) for assistance. Representatives are available to answer your questions daily from 6 am to midnight (EST). The toll free number is (866) 217-9197. When calling please have your application serial or patent number, the type of document you are having an image problem with, the number of pages and the specific nature of the problem. The Patent Electronic Business Center will notify applicants of the resolution of the problem within 5-7 business days. Applicants can also check PAIR to confirm that the problem has been corrected. The USPTO's Patent Electronic Business Center is a complete service center supporting all patent business on the Internet. The USPTO's PAIR system provides Internet-based access to patent application status and history information. It also enables applicants to view the scanned images of their own application file folder(s) as well as general patent information available to the public. For all other customer support, please call the USPTO Call Center (UCC) at 800-786-9199.

/Shubo (Joe) Zhou/

Art Unit: 1631

Shubo (Joe) Zhou, Ph.D.

Primary Examiner